

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
4 November 2004 (04.11.2004)

PCT

(10) International Publication Number  
**WO 2004/093806 A3**

(51) International Patent Classification<sup>7</sup>: **C07C 229/00**,  
205/00, 63/00, A01N 43/12

(21) International Application Number:  
PCT/US2004/012142

(22) International Filing Date: 20 April 2004 (20.04.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
60/464,553 22 April 2003 (22.04.2003) US

(71) Applicant (for all designated States except US): **WELL-  
STAT THERAPEUTICS CORPORATION** [US/US];  
930 Clopper Road, Gaithersburg, MD 20878 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **HODGE, Kirvin, L.**  
[US/US]; 8115 Mississippi Road, Laurel, MD 20724 (US).  
**KAUFMAN, Robert, J.** [US/US]; 8129 Stanford Avenue,  
St. Louis, MO 63130 (US). **LEE, Albert** [US/US]; Apart-  
ment G, 13648 Riverway Drive, Chesterfield, MO 63017  
(US). **SHARMA, Shalini** [US/US]; 211 Bristol Down  
Drive, Gaithersburg, MD 20878 (US). **VON BORSTEL,**  
**Reid, W.**; 8310 Fox Run, Potomac, MD 20854 (US).

(74) Agent: **KREISLER, Lewis, J.**; Legal Department, 930  
Clopper Road, Gaithersburg, MD 20878 (US).

(81) Designated States (unless otherwise indicated, for every  
kind of national protection available): AE, AG, AL, AM,  
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,  
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,  
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,  
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,  
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,  
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,  
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,  
ZW.

(84) Designated States (unless otherwise indicated, for every  
kind of regional protection available): ARIPO (BW, GH,  
GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),  
Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), Euro-  
pean (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR,  
GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK,  
TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,  
ML, MR, NE, SN, TD, TG).

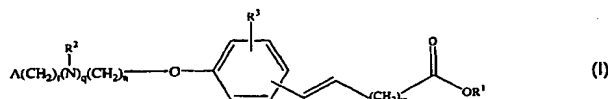
**Published:**

- with international search report
- before the expiration of the time limit for amending the  
claims and to be republished in the event of receipt of  
amendments

(88) Date of publication of the international search report:  
7 April 2005

For two-letter codes and other abbreviations, refer to the "Guid-  
ance Notes on Codes and Abbreviations" appearing at the begin-  
ning of each regular issue of the PCT Gazette.

(54) Title: COMPOUNDS FOR THE TREATMENT OF METABOLIC DISORDERS



(57) Abstract: Agents useful for the treatment of various metabolic disorders, such as insulin resistance syndrome, diabetes, hyperlipidemia, fatty liver disease, cachexia, obesity, atherosclerosis and arteriosclerosis are disclosed. Formula (I) wherein n is 1 or 2; m is 2 or 3; q is 0 or 1; t is 0 or 1;  $R^2$  is alkyl having from 1 to 3 carbon atoms;  $R^3$  is hydrogen, halo, alkyl having from 1 to 3 carbon atoms, or alkoxy having from 1 to 3 carbon atoms; A is phenyl, unsubstituted or substituted by 1 or 2 groups selected from: halo, alkyl having 1 or 2 carbon atoms, perfluoromethyl, alkoxy having 1 or 2 carbon atoms, and perfluoromethoxy; or cycloalkyl having from 3 to 6 ring carbon atoms wherein the cycloalkyl is unsubstituted or one or two ring carbons are independently mono-substituted by methyl or ethyl; or a 5 or 6 membered heteroaromatic ring having 1 or 2 ring heteroatoms selected from N, S and O and the heteroaromatic ring is covalently bound to the remainder of the compound of formula I by a ring carbon; and  $R^1$  is hydrogen or alkyl having 1 or 2 carbon atoms. Alternatively, when  $R^1$  is hydrogen, the biologically active agent can be a pharmaceutically acceptable salt of the compound of Formula (I).

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/12142

<b>A. CLASSIFICATION OF SUBJECT MATTER</b> IPC(7) : C07C 229/00, 205/00, 63/00; A01N 43/12 US CL : 560/019, 021; 562/405, 433, 442; 514/543 According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b> Minimum documentation searched (classification system followed by classification symbols) U.S. : 560/019, 021; 562/405, 433, 442; 514/543 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) STN structure and Caplus files, EAST, WEST		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 2002100341 A2 (SHARMA et al) 06 June 2002 (06.12.2002), see the entire document.	1-23
A	WO 2002053547 A1 (MOMOSE et al) 28 December 2001 (28.12.2001), see the entire document.	1-23
A	DE 3419952 A1 (KRISTEN et al) 28 May 1984 (28.05.1984), see the entire document.	1-23
A	US 5,932,601 A (SOHDA et al) 03 August 1999 (03.08.1999), see the entire document.	1-23
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.		
* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
Date of the actual completion of the international search 26 November 2004 (26.11.2004)		Date of mailing of the international search report <b>28 JAN 2005</b>
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230		Authorized officer <i>Cecilia Tsang</i> Telephone No. 571-272-1600